

QUICK-CSi

User manual



Contrôle & Sécurité pour IBM System i™



SIMPLE & PERFORMANT

TRADER'S 
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1. CONCEPTS

1.1. AUDIT JOURNAL

The audit part of Quick-EDD/HA will be used to trace system and application operations from the Audit journal.

Periodically the Quick-CSi supervisor will collect data from the journal receivers and will produce automatic reporting for all the operations we would like to control.

1.2. QUICK-CSI FUNCTIONS

1.2.1. Tracing operations

Quick-CSi will activate audit on the system, for applications and user profiles (if it is not already active). Settings will allow defining how to supervise the different operations and will produce automatically the reports based on selection.

Quick-CSi will manage the different steps:

- ▶ **Extraction** Collect data from journal receivers and storage in Quick-CSi database
- ▶ **Gestion** The journal receivers will be automatically managed by Quick-CSi. Clean-up can also be automated
- ▶ **Archivage** The amount of data generated by the audit can be important. It needs a well organization of data to be archived on tapes and staying available in case of auditor requests.

All operations of Quick-CSi are processed in a dedicated sub-system PMCSI. They are submitted manually or automatically depending on settings.

Automatic reporting is done, based on settings ; Queries on the database is also available from the menus (interactive and reporting).

1.2.2. Tracing Access on the system

A specific option of Quick-CSi allows to implement exit programs on different exit points of the system.

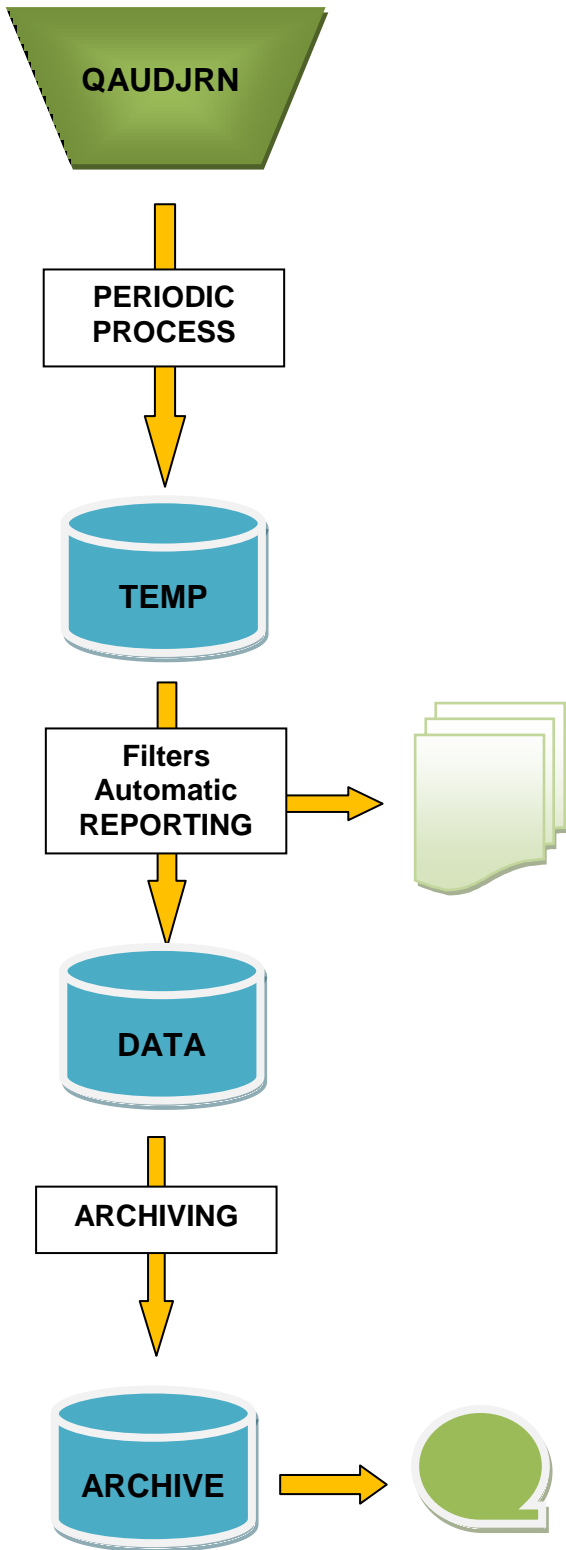
The exit programs will collect information for each access to the system through the different TCP/IP functions (FTP, Telnet, SQL, ...). The information will be converted as an audit journal entry. All access information will be available as any operation provided by the audit.

1.3. QUERY USING PM-PAGE

Interactive queries functions are based on a special module called PM-PAGE. This module can query any DB2 file, allowing multi criteria for display and printouts.

See PM-PAGE topic at the end of the document

1.4. GENERAL SCHEME



The i5 Audit traces all operation done (all audited objects and/or by audited users).

The supervisor automaticall extracts data from journal receivers, and store information in the « period » database.

The supervisor produces all reports – based on settings – from the « period » database. After that data are copied to the main database of Quick-CSi.

The database is available for all queries and reporting.

An ARCHIVE function allows to extract data from the main databse to be stored into different databases, allowing a better management of the storage, and preparing a storage on tapes.

Backups: Archive libraries must be stored on tapes, allowing a restore in case of auditor requests.

1.5. MAIN MENU

The command PMCSI displays the main menu:

```
QSLFRA2    65117EA           Quick-CSi                29/08/12
PM_CSI                                           15:47:25
-----
CSi - Control and Security for System i          V12_0812
-----
Select one of the following options:

                1. Parameters
                2. Exploitation
                3. Work with collected data

Option, or command
===> _____
_____

F3=Exit  F4=Prompt  F9=Repeat  F12=Cancel
```

The menu gives access to the three following sub-menus:

- ▶ Installation and settings
 - Definition of audit and Quick-CSi parameters
- ▶ Operation menu
 - Management of the supervisor. Archive and clean-up options
- ▶ Work with collected data
 - Queries and reporting option on Quick-CSi database

2. INSTALLATION AND SETTINGS

Option “1” of the main menu gives access to the Installation and Setting menu:

```

OSLFRA2    65117EA           Quick-CSI                9/08/12
PM_CSI                                11:41:36
-----
CSI - Settings
-----
Select one of the following options:

  General parameters                Control Accesses
  1. Create Audit journal           11. Work with exit points
  2. Activate Audit / Objects
  3. Activate Audit / Profiles

  Manage AUDIT                      Security of Data
  4. Planning of processings        . Define files .....
  5. Manage AUDIT entries
  6. Define filters

Option, or command
===> _____
-----
F3=Exit  F4=Invite  F9=Rappel  F12=Annuler

```

The menu gives access to the following options:

- ▶ **1 - 3. Installation**
 - Create audit objects and set system values
 - Activate audit on application objects
 - Activate audit on user profiles
- ▶ **4. Scheduler**
 - Define periodicity for data collection
- ▶ **5. Management of audit type of entrys**
 - Define options for audit type of entrys
- ▶ **6. Define filters**
 - Create filters to omit journal entries
- ▶ **11. Management of access points**
 - Activate exit points to control system accesses
- ▶ **. Database files definition**
 - Not available

2.1. INSTALLATION & SETTINGS

The installation options 1 to 3 allows to set-up audit on the system. These options are optional if the audit is already active on the system.

2.1.1. Create Audit and set System Values

Step 1 – Audit journal and options

The first step will create the audit journal (QAUDJRN in library QSYS), and update the system values associated with this function.

```

Change Security Auditing (CHGSECAUD)

Type choices, press Enter.

QAUDCTL system value . . . . . > *ALL          *SAME, *ALL, *NONE...
Auditing values . . . . . > *CREATE          *SAME, *ALL, *DFTSET...
                             > *DELETE
                             > *OBJMGT
                             > *SECURITY
                             > *SAVRST
                             > *AUTFAIL
                             > *NETCMN
                             > *PGMADP
                             > *PGMFAIL
                             > *SYSMGT
Initial journal receiver . . . . . AUDRCV0001   Name
Library . . . . . QGPL                       Name, *CURLIB

Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
  
```

This option uses the capabilities of i5 command CHGSECAUD which allows to create or update audit options.

Note: Pay attention to the library which will be used to store the journal receiver. It can be any user library as PMCSIUSR, or a dedicated library for journal receivers..

Step 2 – System value QCRTOBJAUD

The system value QCRTOBJAUD allows to setup automatically the audit level for any new object created on the system.

Using option *CHANGE would be recommended for this system value.

```

                                Work with System Values
                                System:      QSLFRA2
Position to . . . . . _____ Starting characters of system value
Subset by Type . . . . . _____ F4 for list

Type options, press Enter.
  2=Change   5=Display

Option  System
Value   Value      Type      Description
-       QCRTOBJAUD  *SEC      Create object auditing

                                                                Bottom
Command
====> _____
F3=Exit  F4=Prompt  F5=Refresh  F9=Retrieve  F11=Display names only
F12=Cancel
    
```

The command WRKSYSVAL QCRTOBJAUD is displayed. Use option 2 to modify the value.

Step 3 – Secure Objects

This step will secure the Quick-Csi application, giving ownership and creating the authorization list to protect objects and database.

- ▶ Create user profile PMCSI
 - This profile will get the ownership of all the application
- ▶ Create authorization list PMCSI
 - This authorization list will be applied on all the objects of the application

After running this step, all objects of libraries PMCSI and PMCSIUSR will have the following right definition:

- ▶ Owner PMCSI
- ▶ *PUBLIC rights *EXCLUDE
- ▶ Authorization list PMCSI

2.1.2. Activate Audit on Objects

After the audit is started on the system, it must be activated on application objects and database. It is recommended to activate it on all objects of *ALLUSR libraries, but the system manager can defined it based on a sub-set of libraries or applications.

The following window is displayed:

```
ACTIVATE AUDIT ON OBJECTS

Libraries ..... : *ALL
Submit a batch job : 1 (1=Yes)
F3=Exit  F12=Cancel
```

Libraries

- Indicates a name of a library or a generic name.

A CHGOBJAUD will be executed for each object of the selection.

Submit a batch job

The option can run interactively or submitted as a batch job.

1=Yes – A batch job is submitted to activate audit

0=No – The CHGOBJAUD runs in interactive mode

Audit can be activated step by step, depending on the availability of applications.

Note: CHGOBJAUD will modify every object of the selection. This operation can impact the next backup of the libraries if a SAVCHGOBJ is used (all objects will be included in the next backup).

2.1.3. Activate Audit on User profiles

To complete the audit protection, it is also possible to activate audit capability on user profiles. Using *CMD level on user profiles, the audit will trace all commands done by selected user profile.

The option proposes to activate the audit on user profiles:

```
ACTIVATE AUDIT ON PROFILES

User profiles ..... : *ALL_____
Submit a batch job  : 1 (1=Yes)
F3=Exit  F12=Cancel
```

User profiles

Indicates a name, a generic name, or *ALL

A CHGUSRAUD with option *CMD will be done for every selected profiles.

Submit a batch job

The option can run interactively or submitted as a batch job.

1=Yes – A batch job is submitted to activate audit

0=No – The CHGUSRAUD runs in interactive mode

2.2. SCHEDULE THE PROCESS

The audit journal traces all operation in real time. Quick-CSi will periodically extract these data from journal receivers, depending on the company needs and rules.

This option mainly defines the periodicity of the data extraction.

```
MANAGEMENT OF DATA HARVEST  
  
Last process  
Process date ..... : 2012/08/29  
From receiver .... : PMEDHJRN/AUDRCV0219  
To receiver ..... : PMEDHJRN/AUDRCV0219  
  
Periodicity ..... : 12 hours  
Keep journal receivers ..... : 0 days  
                                (0=Ignored)  
  
F3=Exit  F12=Cancel
```

The displayed window shows information about the last process.

Périodicity

Indicate a periodicity of data extraction.

- ▶ Minimum is 1 hour
- ▶ Maximum is 24 hours

The value will be used when the supervisor will restart (if already active).

Note: If an immediate control is required, it will be always possible to end and restart the supervisor to analyze current data and produce reports.

Keep journal receivers

Quick-CSi can automates the clean-up of journal receivers.

Indicate the number of days to keep the journal receivers before automatic deletion

0 = No deletion be Quick-CSi

Note: Pay attention to the journal receivers management:

- Are they dedicated to Quick-CSi or are they shared with other application (HA replication, ...)
- Do they need to be backed up before deletion

2.3. MANAGE AUDIT TYPE OF ENTRIES

The management of journal type of entries allows to define the specific options for each type of entry.

The screen shows all the type of entries ; types are groups by domain, helping for the definition:

MANAGE		TYPE		OF
<u>ENTRYS</u>				
2=Modify 5=Display				
Slr	Grp	Code	Description	Gst Prt Alr
-	AUD		***** Audit management *****	
-	AUD	AD	Object auditing attribute change	1 0 0
-	AUD	GR	General purpose audit record	1 0 0
-	AUD	ZC	Audit object change	1 0 0
-	AUD	ZR	Audit read access	1 0 0
-	AUT		***** Authorization management *****	
-	AUT	AF	Authority failure	1 0 0
-	AUT	AP	Program adopt	1 0 0
-	AUT	CA	Change of authority	1 1 0
-	AUT	IS	Internet security management	1 0 0
-	AUT	JD	CHGJOB of user value	1 0 0
-	AUT	OW	Object ownership change	1 1 0
				More...
F3=Exit F5=Refresh F12=Cancel				

All types of entry are listed, by domain. For each type we can see directly the selected options:

- ▶ Management of the type of entry by Quick-Csi
- ▶ Automatic reporting
- ▶ Threshold for alerts

2.3.1. Define options for type of entry

Selecting a type of entry the following window is displayed:

OPTIONS FOR TYPE OF ENTRY

Group : **AUD**
 Code : **GR**
 Description : General purpose audit record

Manage entries : **1** (0=No, 1=Yes)
 Automatic reporting : **0** (0=No, 1=Yes)
 Filters for report : **0** (0=No, 1=Yes, J=Job, U=User)
 Threshold : **0** Threshold : _____

F12=Cancel

The type of entry is displayed with the group and text description.

For each type of entry, define the following options:

Manage the entry

The option allows excluding a type of entry from the general management of Quick-CSi. If a type of entry is excluded all corresponding entries from the audit journal would be ignored during data extraction.

By default all types of entry are selected with option "1".

If a type of entry is excluded, it is displayed in RED on the list of the main screen.

Available options:

- ▶ 0=No This type of entry will be ignored by Quick-CSi
- ▶ 1=Yes This type of entry is managed by Quick-CSi (by default)

Caution: Ignoring type of entries, no journal entry will be stored in the Quick-CSi database and archives.

Automatic reporting

Using this option, Quick-CSi will provide a detailed list of all operations corresponding with this type.

Available options:

- ▶ 0=No Quick-CSi will not produce automatic report for the type of entry
- ▶ 1=Yes A detailed list will be generated by Quick-CSi after extraction of data

Filters for reporting

The filters allow to ignore some entries from the detailed report (most of the time repetition of operations done by the same application all over the days)

Available options:

- ▶ 0=No The report will not use filters
- ▶ 1=Yes The report will use filters
- ▶ J=Job Only filters based on job name are used
- ▶ U=Users Only filters based on user profile name are used

Alert and Threshold

The alert level allows highlighting if there is more operations than expected for the selected type of entry. Activating this option, a special information will appear on the automatic report comparing the number of operation and the threshold.

Available options:

- ▶ 0=No No threshold for this type of entry
- ▶ 1=Yes A threshold is defined and the number of operation is controlled for the period – Indicate a value for the threshold (0 is accepted)

2.4. MANAGEMENT OF FILTERS

The amount of entries generated by the audit journal is sometimes very important (some applications are doing repetitive action every second). Even you have to archive them in case of control; it would be interesting to ignore them from the automatic reports, avoiding a lot of unused pages.

You can define filters for the automatic reporting function. Filters are based on two different criteria:

- ▶ Filter on the user profile name
- ▶ Filter on the job name

2.4.1. Definition of filters

Option 6 of the menu displays the following screen:

```

Quick-CSI                DEFINITION OF FILTERS
-----
Indicate name, or generic name to be omitted

Press F9 to select the type of filter you want to create

F3=Exit  F5=Refresh  F9=Select  F12=Cancel
    
```

Press F9 to select the type of filter you want to create

```

                FILTER CRITERIA
                -----
1. Job name
2. User profile name

                Option : 2

F12=Cancel
    
```

Select the criteria you want to define.

Note: F9 is always available to switch between the different criteria.

When the criteria is selected the following screen is displayed..

Quick-CSi **DEFINITION DES SELECTIONS ET OMISSIONS**

Indicate name, or generic name to be omitted Criteria : **Users**

<input type="radio"/> User profile <input type="radio"/> QNOTES <input type="radio"/> PMSOFT* 	<input type="radio"/> user profile 	<div style="border: 1px solid blue; padding: 2px; display: inline-block; margin-bottom: 5px;">Filter criteria</div>
--	--	---

A suivre...

F3=Exit F5=Réafficher F9=Sélection F12=Annuler

Enter the values, as name or generic name, for the selected criteria.

2.4.2. Use filters for reporting

Filters are optional, and can be used for specific type of entry.
 After you defined some filters, use again the management of types of entry to apply filters on the types of entry.

Options for type of entry

Select how to use filters for the type of entry.

OPTIONS FOR TYPE OF ENTRY

Group : **AUD**
 Code : **GR**
 Description : General purpose audit record

Manage entries : **1** (0=No, 1=Yes)
 Automatic reporting : **0** (0=No, 1=Yes)
 Filters for report : **0** (0=No, 1=Yes, J=Job, U=User)
 Threshold : **0** Threshold : _____

Usage of Filter criteria

- 0=No The report will not use filters
- 1=Yes The report will use filters
- J=Job Only filters based on job name are used
- U=Users Only filters based on user profile name are used

2.5. MANAGE EXIT POINTS

2.5.1. Activate exit programs

TCP/IP offers a lot of functions to access system and data (TELNET, FTP, Remote SQL, ...). This option allows to activate exit programs on some different exit points of the system, allowing to trace all external access to the system and data.

The exit points managed by Quick-CSi are linked with TCP/IP services. Adding or removing an exit program needs to end and restart the corresponding service.

```
MANAGE EXIT POINTS
```

```

1=Turn ON

TELNET Exit point .... : 1
FTP connections ..... : 0
Remote command (REXEC) : 0
Native Database ..... : 0
SQL access ..... : 0

F3=Exit  F12=Cancel
    
```

For each service, indicate:

- ▶ Option « 1 » to activate the exit program
- ▶ Option « 0 » to de activate the exit program

When a definition is changed for one service, a command will be prompted, corresponding with the selected option:

- ▶ PMCSI_EPI – Install an exit program
- ▶ PMCSI_EPR –Remove an exit program

2.5.2. Activate an exit program (PMCSI_EPI)

Option “1” used in front of one service will prompt the command PMCSi_EPI. This command will do the following:

- ▶ Add one or multiple exit programs for the selected service
- ▶ If selected the command will end and restart the corresponding service

CAUTION: Ending and restarting a service can generate trouble for active connection. Pay a special attention for TELNET service. Ending this sevice can end you current session, but also ALL TELNET sessions running on the system. Use restraint mode to do this operation.

2.5.3. Remove an exit program (PMCSI_EPR)

Option “0” used in front of one service will prompt the command PMCSI_EPR. This command will do the following:

- ▶ Remove one or multiple exit programs for the selected service
- ▶ If selected the command will end and restart the corresponding service

CAUTION: Ending and restarting a service can generate trouble for active connection. Pay a special attention for TELNET service. Ending this service can end you current session, but also ALL TELNET sessions running on the system. Use restraint mode to do this operation.

2.5.4. List of managed exit points

*FTP

Activation of an exit program for FTP and TFTP exit points

- QIBM_QTMF_SVR_LOGON FTP Server logon
- QIBM_QTMF_CLIENT_REQ FTP Client Request Validation
- QIBM_QTMF_SERVER_REQ FTP Server request validation
- QIBM_QTOD_SERVER_REQ TFTP Server request validation

*TELNET

Activation of an exit program for TELNET exit point

- QIBM_QTG_DEVINIT Telnet device initialization

*REXEC

Activation of an exit program for *REXEC exit points

- QIBM_QTMX_SVR_LOGON REXEC server logon
- QIBM_QTMX_SVR_REQ REXEC request validation

*NDB

Activation of an exit program for Native Data Base exit points

- QIBM_QZDA_INIT Database server - Entry
- QIBM_QZDA_ROI1 Database Server - object information

*SQL

Activation of an exit program for SQL exit points

- QIBM_QZDA_SQL1 Database server – SQL access

3. OPERATIONS

The Operations menu proposes all options referring to the management of the supervisor, and includes options for backups and archive processes.

```

QSLFRA2    65117EA           Quick-CSI                9/08/12
PM_CSI                                           11:42:28
-----
CSI - Operation menu
-----
Select one of the following options:

1. Archive CSi data                6. Start sub-system PMCSI
2. Backup archive data            7. End sub-system
3. Purge data                      8. Display sub-system PMCSI

4. Display EDH messages           9. Start supervisor
5. Receiver recovery              10. End supervisor

Option, or command
====> _____

F3=Exit  F4=Prompt  F9=Repeat  F12=Cancel
    
```

- ▶ **Archive CSi Data**
 - Export data from the main library to secondary archive library
- ▶ **Backup archived data**
 - Backup of archive libraries on tapes
- ▶ **Clean-up archive data**
 - Clean-up archived data, based on date
- ▶ **Display messages**
 - Display operation messages from the message queue PMCSIUSR/PMCSI
- ▶ **Recovery on receiver**
 - Recovery option to retrieve information from old journal receiver (used during first installation or after a restore operation of receivers)
- ▶ **Manage sub-system PMCSI**
 - Start sub-system PMCSI
 - End sub-system PMCSI
 - Display jobs from the sub-system PMCSI
- ▶ **Start supervisor**
 - Submit the supervisor which will collect data

3.1. ARCHIVE

The archive function allows to export data from the main library PMCSIUSR to an archive library. It would be done for:

- ▶ Limit the size of the main database giving better performance for queries
- ▶ Prepare / organize backup of data
- ▶ Clean-up

```

                                Archive CSi data      (PMCSIARC)

Type choices, press Enter.

Archive untill      . . . . .      _____      Date
Archive library     . . . . .      PMCSIARC_____      Name
```

- ▶ Indicates the limit date for exportation of data
- ▶ Indicates the target archive library

By default archive is done in PMCSIARC library. The name of the library is free and any other name can be used for archive.

Exported data can be stored in different libraries (for example one library per month (PMCSI_JAN, PMCSI_FEB, ...)).
 All options dedicated for queries and print stay available for any library which will contain Quick-CSi archived data.

3.2. BACK-UPS

Depending on company rules, audit information must be kept for a long time, may be years. Based on these rules, backup of Quick-Csi libraries must be well organized.

In case of a control, auditors can ask to restore audit information. Backups must be organized allowing answering any request.

```
Save Library (SAVLIB)

Type choices, press Enter.

Library . . . . . > PMCSIARC      Name, generic*, *NONSYS...
Device . . . . .          _____ Name, *SAVF, *MEDDFN
                        + for more values
```

This option is based on a simple SAVLIB. It is given just as an example. Quick-Csi backups will be included in the general backup plan of the company.

3.3. PURGE DATA

This option will allow to clean-up data from archive libraries.

```

                                Clean-up data          (PMCSICLN)

Type choices, press Enter.

Clean-up till      . . . . .          _____      Date
Archive library    . . . . .          PMCSIARC         Name
  
```

- ▶ Indicates the limit date for clean-up of data
- ▶ Indicates the archive library to clean-up

The default library for Archive is PMCSIARC. But any Quick-CSi archive library can be used by this command.

Note: Data from the main library PMCSIUSR cannot be cleaned-up by this command. PMCSIUSR data must be first archived in a secondary library. A backup of the archive library is strongly recommended before cleaning up the data.

3.4. DISPLAY MESSAGES

Option “4” of the menu displays the messages from the message queue PMCSIUSR/PMCSI. The option is corresponding with the following command:

DSPMSG PMCSIUSR/PMCSI

```

                                Display Messages
Queue . . . . . : PMCSI                               System: QSLFRA2
Library . . . . : PMCSIUSR                            Program . . . . : *DSPMSG
Severity . . . . : 00                                 Delivery . . . . : *HOLD

Type reply (if required), press Enter.
CSi - Audit is now active on the system.
CSi - User profile PMCSI has been created.

CSi - Archive process submitted.
CSi - Archive CSi data in library PMCSIARC till 2012/08/25.
CSi - Archive done in library PMCSIARC.
CSi - Recovery will be done from receiver AUDRCV0219.
CSi - End of supervisor sent.
    
```

The message queue contains all messages generated by the supervisor and archive functions.

3.5. RECOVERY ON A JOURNAL RECEIVER

This option allows to restart the extraction of data from a specific journal receiver.

```
RECOVERY FOR EXISTING RECEIVER  
  
Indicates the first journal receiver  
  
Audit journal receiver .... : AUDRCV0219  
Receiver library ..... : PMCSIJRN  
  
F3=Exit F12=Cancel
```

Quick-CSi manages automatically the journal receivers for the audit journal.

It will automates the replacement of journal receivers and the extraction of data from the receivers to the Quick-CSi database.

After the installation of the product (if audit already exist) or after a system operation, it can be required to give the position on a journal receiver, allowing the supervisor to restart the extraction of data.

- Indicates the name of the first journal receiver to be used by the supervisor

The process will be done from this receiver to the current journal receiver associated to the audit journal QSYS/QAUDJRN.

This option is mandatory before starting the journal receiver the first time.

3.6. MANAGE SUB-SYSTEM PMCSI

From the operation menu, options 6, 7 and 8 allow to manage the sub-system PMCSI.

3.6.1. Start sub-system

This option starts the sub-system:

➔ STRSBS SBS(DPMCSIUSR/PMCSI)

3.6.2. End sub-system

This option ends the sub-system.

➔ ENDSBS SBS(PMCSI)

Note: ENDSBS is used with option *CNTRL D, allowing ending normally the jobs

3.6.3. Work with Subsystem Jobs

This option displays the jobs running in the sub-system PMCSI.

➔ WRKACTJOB SBS(PMCSI)

```

Work with Active Jobs
CPU %:      3,2      Elapsed time:  01:29:21      Active jobs:  444
                                                    QSLFRA2
                                                    29/08/12  16:27:41

Type options, press Enter.
 2=Change  3=Hold  4=End  5=Work with  6=Release  7=Display message
 8=Work with spooled files  13=Disconnect ...

Current
Opt  Subsystem/Job  User      Type  CPU %  Function      Status
---  ---            ---      ---   ---    ---          ---
   2  PMCSI         QSYS     SBS   0,0    DEQW          DEQW
   3  PMCSI_SPV     PMCSI    BCH   0,0    DLY-06:00:00 DLYW

```


Bottom

Parameters or command
====>

```

F3=Exit    F5=Refresh  F7=Find    F10=Restart statistics
F11=Display elapsed data  F12=Cancel  F23=More options  F24=More keys

```



Daily, the sub-system will always show the job PMCSI_SPV which is the supervisor in charge of the extraction of data and automatic reporting.
The sub-system would also show specific jobs as archive or clean-up processes.

3.7. MANAGE THE SUPERVISOR

Options 9 and 10 allow to manage the supervisor

3.7.1. Start the supervisor

Option 9 starts the supervisor. The job will be in charge of the data collection from the audit journal, and associated reporting based on parameters.

```
SUBMIT SUPERVISOR

Indicates time for first collect
and press Enter.

Time for first collect .... : 6:00:00
(0=Immediate process)

F3=Exit  F12=Cancel
```

Indicate the time of the first extraction of data.
Following extraction will be done, depending on the periodicity defined in the general parameters.

3.7.2. End the supervisor

Option 10 ends the supervisor. A command ENDJOB is submitted for the active supervisor job.

4. MANAGEMENT OF DATA

Option “3” of the main menu displays the following menu:

```

QSLFRA2    65117EA          Quick-CSI          9/08/12
PM_CSI                                           11:42:14
-----
CSI - Manage collected data          Library .... : PMCSIUSR

Select one of the following options:

Queries                                Printout
 1. Audit by Type of entry           11. Audit by Type of entry
 2. Audit by Object                  12. Audit by Object
 3. Audit by User                    13. Audit by User

                                       18. PMCSI sub-system jobs
                                       19. Work with Spool files

Option, or command
===> _____

F3=Exit  F4=Prompt  F9=Repeat  F12=Cancel
    
```

The menu proposes three options to query the data and three options for printouts.

- ▶ Queries
 - Query by type of journal entry
 - Query by Object
 - Query by User profile

- ▶ Printouts
 - Printouts by type of journal entry
 - Printouts by Object
 - Printouts by User profile

Data library

On the top right the menu displays a specific field “Library”, by default the main library PMCSIUSR.

This field can be modified to select any archive library created by Quick-CSI.

4.1. QUERY FUNCTION

Note: All query functions are based on a specific module called PM-PAGE, allowing queries with multi-criteria. It includes capabilities to select columns, and options for extraction and printouts. This module is described at the end of this document.

4.1.1. Query by type of journal entry

Option "1" displays the list of type of journal entry.

DISPLAY AUDIT ENTRIES						
5=Display S=Spools						
Slr	Code	Description	Gst	Prt	Alr	
_	*D	NDB exit point entry (Native Data base)	1	0	0	
_	*F	FTP exit point entry	1	1	0	
_	*R	REXEC exit point entry	1	1	0	
_	*S	SQL exit point entry	1	1	0	
_	*T	TELNET exit point entry	1	0	0	
_	AD	Object auditing attribute change	1	0	0	
_	AF	Authority failure	1	0	0	
_	AP	Program adopt	1	0	0	
_	AU	Attribute changed	1	0	0	
_	CA	Change of authority	1	1	0	
_	CD	Command string	1	1	0	
_	CO	Object created	1	1	0	
						More...
F3=Exit F5=Refresh F12=Cancel						

Two options are available:

- ▶ **5=Display**
 - Display all records corresponding with the selected type of entry
- ▶ **S=Spools**
 - Display all spool files generated by the automatic reporting process for the selected type of entry

4.1.2. Display entries

Option “5” in front of a type of entry displays all records corresponding with this type of operation (“CO=Create object” in this example):

```

PMPAG - Interrogation   File   : CSI_CO      / PMCSIUSR   Mbr CSI_CO
                               View   : CSI_CO      / PMCSI      Fmt QASYCOJ5
Select option, then press Enter.
5=Display

      Type Timestamp                Job      User      Job
      Type Timestamp                name     name      number
-   CO   2012-08-09-00.00.02.416512 PMGUIV311 QTMHHTTP 468939
-   CO   2012-08-09-00.00.02.417488 TRADERS   QTMHHTTP 468941
-   CO   2012-08-09-00.00.02.419104 PMGUI     QTMHHTTP 468931
-   CO   2012-08-09-00.00.02.420000 PMGUI     QTMHHTTP 468938
-   CO   2012-08-09-00.00.02.420864 ADMIN    QTMHHTTP 468925
-   CO   2012-08-09-00.00.02.424480 IWADFT   QTMHHTTP 468926
-   CO   2012-08-09-00.00.02.426112 ZENDSVR  QTMHHTTP 468942
-   CO   2012-08-09-00.00.02.427680 PM$D    QTMHHTTP 468930
-   CO   2012-08-09-00.00.02.431296 TRADERS   QTMHHTTP 468951
-   CO   2012-08-09-00.00.02.434944 PM$D    QTMHHTTP 468935

Parameter, or Command                                     Début / +++
==> _____
F2=Select  F3=Exit  F4=Invite  F6=Position to  F7=Chg.file  F8=Para  F24=...
    
```

Records are displayed, sorted by data / time of the operation. The field “Time Stamp” giving the information is formatted as AAAA-MM-JJ-HH.MM.SS.ssssss.

Available options:

- 5=Display** – Display the detail of the operation
- S=Spools** – Display associated spool files produced by the supervisor
- F2** – Select / cursor position (column)
- F10/F11** – Additional views
- F19/F20** – Left : Right

4.1.3. Associated spool files

Option “S=Spools” displays all the spool files generated by the supervisor, if the automatic reporting is defined for this type of entry.

```

Work with All Spooled Files

Type options, press Enter.
 1=Send   2=Change   3=Hold   4=Delete   5=Display   6=Release   7=Messages
 8=Attributes   9=Work with printing status

Opt  File           User           Device or      User Data     Sts   Total   Cur   Copy
     PMCSI_PRT     PMCSI         PMCSI         CSI_CO        RDY   212    Page  1
     PMCSI_PRT     PMCSI         PMCSI         CSI_CO        RDY   163    Page  1
     PMCSI_PRT     PMCSI         PMCSI         CSI_CO        RDY   26     Page  1
     PMCSI_PRT     PMCSI         PMCSI         CSI_CO        RDY   26     Page  1
     PMCSI_PRT     PMCSI         PMCSI         CSI_CO        RDY   38     Page  1
     PMCSI_PRT     PMCSI         PMCSI         CSI_CO        RDY   9      Page  1
     PMCSI_PRT     PMCSI         PMCSI         CSI_CO        RDY   37     Page  1
     PMCSI_PRT     PMCSI         PMCSI         CSI_CO        RDY   51     Page  1
     PMCSI_PRT     PMCSI         PMCSI         CSI_CO        RDY   37     Page  1
                                           More...

Parameters for options 1, 2, 3 or command
===>
F3=Exit   F10=View 4   F11=View 2   F12=Cancel   F22=Printers   F24=More keys
  
```

The display is corresponding with command WRKSPLF, selecting all spool files with a User Data “CSI_xx” xx corresponding with the selected type of entry.

This example is showing all spool files for the “DO” operation (Delete Object).

4.1.4. AUDIT by Object

The extraction process generates a specific database, based on object names. It allows querying a specific object, displaying all operation done for this object.

```

PMPAG - Interrogation File : PMCSI_OB / PMCSIUSR Mbr PMCSI_OB
View : PMCSI_OB / PMCSI Fmt CSIOBJR

Select option, then press Enter.
5=Display

Library Object Object Entry
Name Type Code Time stamp
-- $EDHJRN RCV160 *JRNRCV DO 2012-08-26-12.00.04.941872
-- $EDHJRN RCV161 *JRNRCV DO 2012-08-26-12.00.05.015744
-- $EDHJRN RCV162 *JRNRCV DO 2012-08-26-12.00.05.078752
-- $EDHJRN RCV163 *JRNRCV DO 2012-08-26-12.00.05.157840
-- $EDHJRN RCV164 *JRNRCV ZC 2012-08-26-17.37.27.572752
-- $EDHJRN RCV165 *JRNRCV CA 2012-08-26-17.37.26.546112
-- $EDHJRN RCV165 *JRNRCV CO 2012-08-26-17.37.26.546192
-- $EDHJRN RCV165 *JRNRCV ZC 2012-08-26-17.37.27.572144
-- $EDHJRN RCV166 *JRNRCV ZC 2012-08-28-19.03.24.175072
-- $EDHJRN RCV167 *JRNRCV CA 2012-08-28-19.03.23.099696

Parameter, or Command Début / +++
==>
F2=Select F3=Exit F4=Invite F6=Position to F7=Chg.file F8=Para F24=...
    
```

The table is organized by Library / Object / Object type / Time stamp. Operations are displayed using this sequence.

Lookup for a specific object

Function key F6 gives position to a specific object

```

Reach File : PMCSI_OB CSI - Journal entries / Object
Format : CSIOBJR
Rcd. : 530389

Enter the value for the different fields:
Field Text Value ...
OBOLIB Library name $EDHJRN
OBONAM Object name RCV165
OBOTYP Object type *JRNRCV
OBTSTP Time stamp 2012-09-02-12.00.22.708992
    
```

Indicate the name of the library, the name of the object and type.
Press Enter.

4.1.5. AUDIT by user profile

The extraction process generates a specific database, based on object names. It allows querying a specific object, displaying all operation done for this object.

```

PMPAG - Interrogation   File   : PMCSI_US   / PMCSIUSR   Mbr PMCSI_US
                               View   : PMCSI_US   / PMCSI      Fmt CSIUSRR

Select option, then press Enter.
5=Display

      User      Entry
      Code      Time stamp
-  ARCAD      CD      2012-08-28-01.00.00.272224
-  ARCAD      CD      2012-08-28-01.00.00.540640
-  ARCAD      CD      2012-08-28-01.00.00.548304
-  ARCAD      CD      2012-08-28-01.00.00.557728
-  ARCAD      CD      2012-08-28-01.00.00.561648
-  ARCAD      CD      2012-08-28-01.00.00.561744
-  ARCAD      CD      2012-08-28-01.00.00.562368
-  ARCAD      ZC      2012-08-28-01.00.00.601280
-  ARCAD      ZC      2012-08-28-01.00.00.637456
-  ARCAD      CD      2012-08-29-01.00.00.217232

Parameter, or Command                                     Début / +++
==>
F2=Select  F3=Exit  F4=Invite  F6=Position to  F7=Chg.file  F8=Para  F24=...
  
```

The table is organized by User profile / Time stamp. Operations are displayed using this sequence.

Lookup for a specific profile

Function key F6 gives position to a specific object

```

Reach      File   : PMCSI_US   CSI - Journal entries / User
           Format  : CSIUSRR
           Rcd.   :      1389

Enter the value for the different fields:
Field      Text          Value ...
USUSER     User              PMCSI
USTSTP     Entry type        2012-08-29-01.00.00.217232
  
```

Indicate the name of the library, name of the object and type.
 Press Enter.

4.2. PRINTOUTS

Quick-CSi provides printouts:

- ▶ Automatic reporting generated by the supervisor, based on settings
- ▶ Printouts on demand from the menu

4.2.1. Automatic reporting

Automatic printouts are generated by the supervisor.

Synthesis of journal entries

The first report lists all type of journal entries and counts the number of entries for each one.

- Number of entries for every types of entry
- Based on settings, alert if the threshold is reached

```

-----
On : 2012/08/21 - 10:48:12                                AUDIT JOURNAL SYNTHESIS

Period from   : 2012/08/20 à 19:18:39
Period to     : 2012/08/21 à 10:47:54

Code  Description                                     Total entries  Alert
-----
AD   Object auditing attribute change                7
AF   Authority failure                               0
AP   Program adopt                                  0
AU   Attribute changed                               0
CA   Change of authority                             691
CD   Command string                                 1.292
CO   Object created                                  240
CP   User profile changed, created, or restored      4              1
CQ   Change request description object change        0
CU   Cluster operation                               0
CV   Connection verification                         0
-----

```

Exit points synthesis

The second report proposes a synthesis of exit point operations. Similar to the first report, it counts the number of operations for each exit point.

```

-----
On : 2012/08/21 - 10:48:12                                EXIT POINTS SYNTHESIS

Period from   : 2012/08/20 à 19:18:39
Period to     : 2012/08/21 à 10:47:54

-----
FTP entries ..... :          147      25
TELNET entries ..... :         1843
REXEC entries ..... :             5
Native Database entries :         23
SQL entries ..... :             17
-----

```

Automatic reporting / Detailed

For every type of journal entry, based on the settings, it is possible to generate a report with the list of operation.

On : 2012/08/21 - 10:48:29

AUDIT JOURNAL ANALYSIS

CODE : OM - Object management change

Period from : 2012/08/20 à 19:18:39

Period to : 2012/08/21 à 10:47:54

Date - Time	Job name	User	Number	Program	Library	Object
2012-08-21-02.58.59.165632	EDHMONITOR	PMSOFTICF	447141	EDHMSGQ	PMEDHTOOLS	FIC132
2012-08-21-03.17.59.651696	EDHMONITOR	PMSOFTICF	447141	EDHMSGQ	PMEDHTOOLS	FIC132
2012-08-21-03.18.09.608384	EDHMONITOR	PMSOFTICF	447141	EDHMSGQ	PMEDHTOOLS	FIC132
2012-08-21-03.19.01.804240	EDHMONITOR	PMSOFTICF	447141	EDHMSGQ	PMEDHTOOLS	FIC132
2012-08-21-08.31.49.167280	QPADEV000T	PMCSI	471622	QCMD	QSYS	PMCSIEDS
2012-08-21-08.31.49.167312	QPADEV000T	PMCSI	471622	QCMD	QSYS	QAB04E78D6
2012-08-21-08.33.51.223680	QPADEV000T	PMCSI	471622	QCMD	QSYS	PMCSIEDS
2012-08-21-08.33.51.223728	QPADEV000T	PMCSI	471622	QCMD	QSYS	QAB0504A83
2012-08-21-08.40.18.868480	QPADEV000T	PMCSI	471622	QCMD	QSYS	PMCSIEDS
2012-08-21-08.40.18.868528	QPADEV000T	PMCSI	471622	QCMD	QSYS	QAB0561141
2012-08-21-08.41.03.405120	QPADEV000T	PMCSI	471622	QCMD	QSYS	PMCSIEDS
2012-08-21-08.41.03.405152	QPADEV000T	PMCSI	471622	QCMD	QSYS	QAB056BB22
2012-08-21-08.44.34.816704	QPADEV000T	PMCSI	471622	QCMD	QSYS	PMCSIEDS

4.2.2. On demand / Print audit entries

Option "11" allows to print all entries for a specific type of entry, and for a selected period.

```

LIST AUDIT ENTRIES PER TYPE

Type of entry ..... :   

From date ..... : 2012/01/01 (AAAA/MM/JJ)
to Date ..... : 2012/12/31 (AAAA/MM/JJ)

F3=Exit  F12=Cancel
    
```

- ▶ Indicate the type of journal entry
- ▶ Indicate the period (from date to date)

The spool file will be created in the job output queue.
 The spool file is named PMCSIEDE. The user data will be « CSI_xx » (xx = selected operation code)

On : 2012/08/21 - 11:08:39		<u>AUDIT ENTRY ANALYSIS</u>				
Period from	: 2012/08/20 à 19:18:39	Type of entry ..	: CP			
Period to	: 2012/08/21 à 10:47:54	Description ...	: User profile changed			
Date - Time	Job name	user	Number	Program	Library	Object
2012-08-16-21.00.00.703984	USERFORM	PMCSI_USR1	470957			FORMATION1
2012-08-16-21.00.01.273488	USERFORM	PMCSI_USR1	470957			FORMATION2
2012-08-16-21.00.01.325440	USERFORM	PMCSI_USR1	470957			FORMATION3
2012-08-16-21.00.01.411536	USERFORM	PMCSI_USR1	470957			FORMATION4
2012-08-17-21.00.00.754368	USERFORM	PMCSI_USR1	471115			FORMATION1
2012-08-17-21.00.01.308960	USERFORM	PMCSI_USR1	471115			FORMATION2
2012-08-17-21.00.01.380208	USERFORM	PMCSI_USR1	471115			FORMATION3
2012-08-17-21.00.01.467040	USERFORM	PMCSI_USR1	471115			FORMATION4

4.2.1. On demand / Entries per Object

L'édition par type de poste permet de produire un rapport de toutes les opérations liées à un objet spécifique.

```

LIST AUDIT ENTRIES PER TYPE

Library ..... : ██████████
Name .....   : ██████████
Type .....    : ████████

From date ..... : 2012/01/01 (AAAA/MM/JJ)
From Date ..... : 2012/12/31 (AAAA/MM/JJ)

F3=Exit  F12=Cancel
  
```

- ▶ Indiquer les références de l'objet (bibliothèque, nom, et type de l'objet)
- ▶ Indiquer la période à éditer (date de début et la date fin)

Le fichier spool sera produit dans la file d'attente de l'utilisateur qui a exécuté la demande. Le fichier spool s'appelle PMCSIEDO - La donnée utilisateur « USRDTA » contiendra le nom de l'objet interrogé.

```

On : 2012/08/21 - 11:08:52
AUDIT ENTRIES / BY OBJECT

Period from   : 2012/08/20 à 19:18:39
Period to     : 2012/08/21 à 10:47:54
Object ..... : PMCSI
Library .... : PMCSITYP
Type of Object. : *FILE
  
```

Date - Time	Ope	Job name	User	Number	Program	Library	Object
2012-08-21-09.12.50.465568	ZC	QPADEV000T	PMCSI	471622	QDZTD00001	QTEMP	
2012-08-21-09.12.50.465568	ZC	QPADEV000T	PMCSI	471622	QDZTD00001	QTEMP	
2012-08-21-09.12.50.465744	ZC	QPADEV000T	PMCSI	471622	QDZTD00001	QTEMP	
2012-08-21-09.12.50.465744	ZC	QPADEV000T	PMCSI	471622	QDZTD00001	QTEMP	

4.2.1. On demand / Entries per User profile

L'édition par type de poste permet de produire un rapport de toutes les opérations liées à un profil utilisateur spécifique.

```

PRINT AUDIT ENTRIES PER USER

User profile ..... : ██████████

From date ..... : 2012/01/01 (AAAA/MM/JJ)
to Date ..... : 2012/12/31 (AAAA/MM/JJ)

F3=Exit  F12=Cancel
    
```

- ▶ Indiquer le nom de l'utilisateur à analyser
- ▶ Indiquer la période à éditer (date de début et la date fin)

Le fichier spool sera produit dans la file d'attente de l'utilisateur qui a exécuté la demande. Le fichier spool s'appelle PMCSIEDU - La donnée utilisateur « USRDTA » contiendra le nom du profil utilisateur interrogé.

On : 2012/08/21 - 11:09:14

AUDIT ENTRIES / BY USER PROFILE

Period from : 2012/08/20 à 19:18:39
 Period to : 2012/08/21 à 10:47:54

User ... : PMCSI

Date - Time	Ope	Job name	User	Number	Program	Library	Object
2012-08-16-07.00.00.599616	JS	PMACG_CVT	PMCSI	470764	QWTPPIPP	QSYS	
2012-08-16-07.00.00.675392	CD	PMACG_CVT	PMCSI	470764	QCMD	QSYS	CALL
2012-08-16-07.00.00.764400	CD	PMACG_CVT	PMCSI	470764	PMACGCHG	PMACG	RTVJOBA
2012-08-16-07.00.00.764480	CD	PMACG_CVT	PMCSI	470764	PMACGCHG	PMACG	RTVSYSVAL
2012-08-16-07.00.00.775552	CD	PMACG_CVT	PMCSI	470764	PMACGCHG	PMACG	RTVJOBA
2012-08-16-07.00.00.787392	CD	PMACG_CVT	PMCSI	470764	PMACGCHG	PMACG	RMVMSG
2012-08-16-07.00.00.787536	CD	PMACG_CVT	PMCSI	470764	PMACGCHG	PMACG	CHGJRN
2012-08-16-07.00.00.951104	CA	PMACG_CVT	PMCSI	470764	PMACGCHG	PMACG	PMACG0092
2012-08-16-07.00.00.951200	CO	PMACG_CVT	PMCSI	470764	PMACGCHG	PMACG	PMACG0092
2012-08-16-07.00.01.280096	CD	PMACG_CVT	PMCSI	470764	PMACGCHG	PMACG	RCVMSG
2012-08-16-07.00.01.280208	CD	PMACG_CVT	PMCSI	470764	PMACGCHG	PMACG	CHGDTAARA
2012-08-16-07.00.01.290400	ZC	PMACG_CVT	PMCSI	470764	PMACGCHG	PMACG	PMACGINF
2012-08-16-07.00.01.290496	CD	PMACG_CVT	PMCSI	470764	PMACGCHG	PMACG	CHGDTAARA
2012-08-16-07.00.01.290656	ZC	PMACG_CVT	PMCSI	470764	PMACGCHG	PMACG	PMACGINF

5. PM-PAGE – QUERIES

PM-PAGE is a query function for DB2 files.
It is embedded in Quick-CSi to offer query functions around the database.

Basic functions:

- ▶ Query database files
- ▶ Filtering at column level
- ▶ Search / position in the file
- ▶ Dynamic format of the displayed view
- ▶ Multiple views (F10/F11 as managed in WRKSPLF command)
- ▶ Management of option available on records
- ▶ Creation of independent “view” object which can be used in CLP, menus, ...

5.1. SELECT RECORDS

The first functionality of PM-PAGE is to select records on multiple criteria. Putting the cursor on a column and using function key F2, a window is displayed, allowing defining a selection:

Define a selection on a Field

Field : JOJOB Job name 10

A/O Test tested value

A EQ _____ _

F12=Cancel

The window shows the detail of the selected field (JOJOB), the text description and the length of the field.

- ▶ Indicate a comparison test and a value

- **EQ** Equal
- **NE** Different than
- **LT** Lower than
- **LE** Lower or equal
- **GT** Greater than
- **GE** Greater or equal
- **LC** Character test
- **LO** Lookup (contain stream)
- **NO** Nor (does contain stream)

5.2. DEFINE A USER VIEW

The user view is an object created dynamically which will contain all query parameters for a specific table.

All options available in PM-PAGE can be stored in a user view:

- ▶ **File name**
Definition of the file name and library, and associated member
- ▶ **Security option**
User authorization. This function allows to define if the user can modify the view
- ▶ **Display mode**
Display can be done in a full screen or in a sized window
- ▶ **Displayed fields**
The view can display all the fields of the table or a limited subset of fields
- ▶ **Allowed options**
The view contains the definition of option which can be used at record level (5=Display, 2=Modify, ...)
- ▶ **Filters on fields**
The view can include filtering on columns.

5.2.1. Create a user view

From the main screen, using function key F8, the setting window is displayed, giving access to the different options.

```

DEFINITION OF THE USER VIEW

1. General parameters
2. Definition of fields
3. Selection of fields
4. Definition of options
5. Filters
9. Save the view

Option : _

F3=Exit  F12=Cancel
    
```

Available options:

- ▶ **General parameters**
General parameters for security and display format
- ▶ **Definition of fields**
Definition of displayed fields with column heading, and options
- ▶ **Selection of fields**
List of all fields of the table
- ▶ **Definition of Options**
Management of allowed options
- ▶ **Filters**
Definition of filters (column level)
- ▶ **Save the view**
Save the view as an object to be used (directly or included in a user menu)

All modifications are dynamically included in the view allowing a validation before saving the view.

5.2.1. Definition of fields

Using option 2 of the menu, fields can be defined for the view:

- ▶ Select displayed fields
- ▶ Optional parameters for the field
 - Edit codes
 - Column heading
 - Fixed and variable fields (fixed fields are always displayed and not affected by F10/F11 and F19/F20)
 - Definition of multiple view (F10/F11 as a WRKSPLF presentation)

<u>SELECTION OF FIELDS</u>				
View: VUE01		Test View / Job 1		
2=Modify 4=Remove				
Opt	Seq	Field	Col. Heading	Len
-	10	JOSTEP	STEP	9.0
-	20	JODATE	DAT6	6.0
-	30	JOTIME	TIME	6.0
-	40	JOJOB	JOB	10.0
-	50	JOUSER	USR	10.0
-	60	JONBR	JOBNBR	6.0
-	70	JOCDE	CACG	15.0
-	80	JOCPU	CPU	11.0
				A suivre ...
F6=Add F2=Options F17=Top F12=Cancel				

Available functions

- ▶ Change the sequence of the field
- ▶ Modify option for the field
- ▶ Remove the field from the view

Options :

- 2=Modify** Modification of the field attributes (Column heading, sequence, edit code, ...)
- 4=Delete** Remove the field for the view (the field will not be displayed)

5.2.1. Save the view definition

The definition and all settings are saved in an object called a “user view”. This view will be used directly with the command PMPAG.

The definition will be available for modification for authorized users.

```

SAUVEGARDE DE LA DEFINITION

View..... : CSI JOB01
Library .... : PMCSI

Replace view ...: 1 (0=No 1=Yes)

F3=Exit  F4=Invite  F12=Cancel
    
```

- ▶ Indicate the name of the view and the library
- ▶ Indicate if the existing view will be replaced

Press enter to create the view.

The view will be stored in the selected library as a user space (*USRSPC object)